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I, JONNE YABSLEY, TEAM LEADER EXAMINATION SUPPORT AND
SALES hereby certify that annexed is a true copy of the specification in
connection with Application No. PS 2743 for a patent by LAMSON CONCEPTS
PTY LIMITED as filed on 04 June 2002.



WITNESS my hand this
Seventeenth day of June 2003

J R Yabsley

JONNE YABSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES

Our Ref: 7712590

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AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION

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Invention Title: Security system

The invention is described in the following statement:

SECURITY SYSTEM

Background of the Invention

The present invention relates to a carrier and a system for transporting security documents,
5 and in particular security documents such as cash.

Description of the Prior Art

The reference to any prior art in this specification is not, and should not be taken as, an
acknowledgement or any form of suggestion that the prior art forms part of the common
10 general knowledge in Australia.

Currently, it is known to transport cash and other security documents, using air tube
systems. In air tube systems, the documents are located in a carrier, which is in turn placed
in a tube. The carrier creates a seal with the tube, such that the carrier may be sucked
15 along the tube from a loading point, to a collection point, thereby allowing the documents
to be transported.

However, the level of security provided by the system is minimal. For example, the
carriers are not generally secure and can therefore be intercepted along the tube length,
20 allowing the contents to be examined or removed. This also allows individuals interacting
with the carrier, such as the individuals loading or removing the carrier from the tube, to
access the contents of the carrier, which may be undesirable.

This is particularly important in situations where large quantities of cash are handled, such
25 as in the gaming industry. For example, when cash is collected from the gaming tables, it
is important to ensure that the cash is securely transported from the table to a counting
room, particularly as quantities can often involve tens or hundreds of thousands of dollars.

Currently, cash collected at the tables is inserted through a slot in the table surface and into
30 a security box, which is locked into the table. At a suitable time, such as when the box is

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full, the box is unlocked from the table by a security guard. The guard then transports the cash to the gaming room. Security cameras typically monitor this procedure.

Even using the security guard does not assure security as the guard may be attacked, or
5 even take the cash themselves. Accordingly, when large amounts of money are involved, often several security guards are required, which in turn can prove prohibitively expensive. Currently however, other forms of transport system, such as air tube systems are too insecure to allow such large amounts of money to be transferred in this fashion.

10 Summary of the Present Invention

In a first broad form the present invention provides a carrier for transferring security documents, the carrier being adapted for use in an air tube system having a tube for transporting the carrier from a source to a destination, the carrier including:

- 15 a) A substantially cylindrically shaped housing defining an internal cavity, the housing being adapted to cooperate with the tube in use, to allow the carrier to be transported;
- b) A lid coupled to a first end of the housing, the lid including an aperture adapted to allow documents to be inserted into the cavity in use;
- c) A base removably mounted to a second end of the housing opposite the first, the
20 base being removable to allow access to the cavity; and,
- d) A lock for retaining the base in place.

Preferably the lock is formed from a dual key bilock mechanism.

25 The aperture is generally formed from a narrow slot.

Typically the carrier also includes a transmitter, the transmitter being adapted to cooperate with air tube transport system to allow the location of the carrier within the tube to be determined.

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In a second broad form the present invention provides a docking system for receiving a carrier for transporting security documents, the carrier having a cylindrically shaped housing having an aperture in a first end for receiving the documents, the docking system including a substantially cylindrical shaped cavity adapted to receive the carrier, the
5 docking system being adapted to cooperate with a gaming table such that documents inserted through a gaming table aperture are received by the carrier aperture.

In a third broad form the present invention provides an air tube system for transferring security documents, the air tube system having a tube coupled to an air pressure control
10 system for controlling the air pressure in the tube to thereby transport a carrier from a source to a destination.

Preferably the carrier is a carrier according to the first broad form the present invention.

15 The air tube system may therefore include one or more receivers positioned along the length of the tube, the receivers being adapted to detect a transmitter mounted to the carriers, thereby allowing the carrier location to be determined.

In a fourth broad form the present invention provides a system for transferring security
20 documents, the system including:

- a) A carrier according to the first broad form the present invention for receiving security documents; and,
- b) An air tube system according to the second broad form the present invention, the
25 air tube system having a tube for transporting the carrier from a source to a destination.

The system may be adapted for use in a gaming environment, in which case the system may further include a docking station according to the third broad form the present invention.

Brief Description of the Drawings

An example of the present invention will now be described with reference to the accompanying drawings, in which: -

- 5 Figure 1 is an example of a system according to the present invention;
- Figure 2A is a schematic diagram of the carrier of Figure 1;
- Figure 2B is a schematic plan view of the lid Figure 2A;
- Figure 3 is a schematic diagram of the air tube system of Figure 1;
- Figure 4 is a schematic diagram of a gaming table; and,
- 10 Figure 5 is a schematic diagram of the docking station of Figure 1.

Detailed Description of the Preferred Embodiments

- An example of the present invention will now be described with reference to Figure 1,
- which shows an example of a system for implementing secure document transport within a
- 15 gaming environment.

As shown the system is formed from a docking station 1, a carrier 2, and an air tube system 3 that couples a loading station 4 to a destination station 5.

- 20 The carrier 2 is shown in more detail in Figures 2A and 2B. As shown in Figure 2A, the carrier is formed from a generally cylindrically shaped body 10 that defines an internal cavity. Mountings 11, 12 are positioned in respective ends 13, 14 of the body 10, with each mounting having a drive ring 15, and Velcro 16 mounted thereon.
- 25 A lid 17 is fixed to the first mounting 11. As shown in plan view in Figure 2B, the lid includes an aperture 17A. A base 18 is removably mounted to the second mounting 13, with the base being held in place by a lock, such as a dual bilock.

- The carrier is adapted to be inserted into a tube 20 of the air tube system 3, shown in
- 30 Figure 3. In this example, the air tube system shown includes a number of loading stations 4, each of which is adapted to receive carriers 1 from different sources, such as different

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gaming tables, as will be explained in more detail below.

5 The tube 20 is coupled to a turbine 21 that is adapted to selectively pump air out of from the tube 20. When inserted into the tube 20 at the loading station 4, the drive rings 15 are adapted to form a seal with the inner surface of the tube 20. As a result, when air is pumped out of the tube, this sucks the carrier along the tube from the loading station 4. The carrier 1 is then transferred via control stations 22 to the destination station 5, with the Velcro 16 being used by the control stations to control routing of the carrier within the tube system, in the normal manner.

10

It will therefore be appreciated that the air tube system 3 may be an existing air tube system provided within a building or the like.

15 In a gaming environment such as a casino, the docking station 1 is adapted to cooperate with a gaming table 6 shown in Figure 4. The gaming table includes a cavity 30 adapted to receive security boxes or the like, to allow security documents, such as cash or gaming tokens, to be inserted through a slot 31 in the gaming table 6, and into the security box.

20 The docking station 1, shown in Figure 5, is formed from a body 40 that can be inserted into the cavity 30 in the same manner as a security box. This is typically achieved by use of runners or the like (not shown) mounted within the cavity 30, with corresponding shoes mounted on the body 40. In this case, the docking station 1 may be secured to the table to prevent removal therefrom. Thus, the docking station can form an integral part of the, gaming table, or be provided as a separate element.

25

In any event, the body 40 includes a cavity 41 adapted to receive the carrier 2 in use. The cavity 41 and the carrier 2 are adapted so that the carrier must be inserted into the cavity in a pre-determined orientation. As a result, when the docking station having a carrier mounted therein is inserted into gaming table cavity 30, the aperture 17A aligns with the slot 31, allowing security documents to be inserted into the body 10 of the carrier 2 through the aperture 17A.

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A lock 42 locks the carrier 2 in place within the docking station body 40, thereby preventing unauthorised removal of the carrier 2 from the docking station 1.

- 5 In use, this provides a secure manner for transporting security documents. An example of this will now be described, with reference to transporting the documents from a gaming table in a gaming room, to a counting room, or the like.

- 10 Firstly, the carrier 2 is locked into the docking station 1, as described above. The docking station is then locked into the cavity 30 in the gaming table, as though it were a security box, in the normal manner.

- 15 During game play, the croupier or other member of staff will insert cash through the slot 31 and into the carrier 2. At a suitable stage, such as when the carrier 2 is near full, or at the end of play, the docking station 1 may be unlocked and removed from the gaming table cavity 30. If the docking station 1 forms an integral part of the gaming table 6, it will typically not be possible to completely remove the docking station 1 from the cavity 30, thereby ensuring the docking station remains secure.

- 20 The carrier 2 can then be unlocked and removed from the docking station 1, and carried by the croupier, or other member of staff to a loading station 4 located within the gaming room. In general, a respective loading station 4 will be provided for each few gaming tables, such that a loading station 4 is always located close to the table 6.

- 25 The carrier 2 is then transported by the air tube system 3 to the desired destination station 5, which in this case is contained in a counting room. This allows the cash to be securely transported from the gaming room to the counting room, without the requirement for security guards or the like.

- 30 It will be appreciated that as the croupier has only a short distance to travel to the loading station 4 thereby reducing the risks of attempted theft. The carrier 2 is then transported out

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of sight of the public, to help further prevent theft, and thereby reducing the need for security guards.

5 The presence of the aperture 17A, and the lockable base 18, prevents the croupier from removing the cash from the carrier 1. The cash can only be removed by operation of the dual bilock, to remove the base 18. The dual bilock requires the presence of two different keys to undo the lock and release the base 18. Accordingly, it is preferred that two individuals are provided with respective ones of the keys, such that the presence of both individuals is required within the counting room, to remove the cash from the carrier.

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Accordingly, once inserted into the slot 31 in the gaming table 6, the cash can only be accessed by the two individuals in the counting room.

15 In order to prevent the carrier being broken, the body 10 is preferably formed from a toughened material such as high impact polymers, metal or the like. Generally the material should have high impact resistance, dimensional stability, high mechanical strength, and surface hardness. Accordingly, aluminium alloys, acetals, or the like may be used.

20 It is also important that the carrier satisfies predetermined weight requirements to allow the carrier to be used within existing air tube systems. This therefore further limits the materials that can be used in constructing the carrier 1.

25 Additional security measures may also be implemented. For example, the aperture 17A can be fitted with a releasable shutter. The shutter is adapted to be opened using a switch located inside the carrier body 10. As a result, in the example described above, the shutter can only be opened when the carrier 2 is in the counting room and the base 18 has been removed. Once opened, cash, or the like may be inserted into the aperture 17A, as described above.

30 The gaming table 6 can be provided with a mechanism that co-operates with the shutter, such that when the docking station 1 is removed from the gaming table 6, the shutter

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closes, thereby blocking the aperture 17A and preventing access to the cash contained in the carrier.

Accordingly, when the carrier is emptied, the aperture 17A is opened and remains open
5 whilst the carrier is inserted into the table 6. Once the carrier 2 contains cash and is removed from the table 6, the aperture 17A is closed, securing the money. The aperture 17A can again only be opened when the carrier 2 is emptied in the counting room.

A further security measure is the provision of a radio tracking system. In this case, each
10 carrier 2 may be fitted with a transmission system (not shown) adapted to cooperate with a tracking system provided in the building in which the air tube system 3 is mounted.

This can be achieved in a number of manners. Thus for example, the carrier may be provided with a location positioning system such as GPS and a transmitter which transmits
15 the location of the carrier 2 to a central receiving base station at periodic intervals. This allows the carriers 2 to be tracked, so that if an attempt to steal a carrier 2 is made, the carrier 2 can be located.

However, the use of a central base station requires a relatively high transmission power,
20 which is undesirable for a number of reasons. In particular, the power requirements make the transmission system relatively complex and weighty, thereby increasing the weight of the carrier 2, and in turn reducing the load capabilities of the carrier 2.

A shorter-range system can be implemented by mounting antennas 24 along the length of
25 the tube 20, as shown in Figure 5. In this case, each carrier would have a respective transmitter adapted to transmit a signal that can be received by the antennas. As the carrier passes by an antenna 24, the antenna detects the signal, allowing the position of the carrier to be determined.

30 The transmitters and antennas can be directional, allowing the direction of the travel, or position of the carrier 1 along the length of the tube 20 to be determined.

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It will be appreciated that by suitable positioning of the antennas 24 along the length of the tube 20 allows the position of the carriers 2 to be uniquely determined. Furthermore, a monitoring system, such as a suitably programmed processing system, can be provided to
5 monitor passage of the carriers 2, to thereby detect if any carriers become diverted, stuck, or go missing. This will allow the location of the disappearance to be identified, thereby helping trace any missing carriers 1.

In general, the processing system may be provided as part of the system that operates the
10 control stations 22 to route the carriers 2 through the tube 20 in accordance with normal routing protocols. Accordingly, a separate processing system may be provided for additional security.

It will be appreciated that in the short-range transmission system, passive wireless
15 transmission can be used, in which the antennas 24 generate carrier signal that is used to power a radio transceiver in the carrier 2. This allows data to be backscatter modulated to the antennas 24 without requiring the presence of an additional power source in the carrier 2, as will be appreciated by persons skilled in the art.

20 In both the above-mentioned examples, each carrier may be adapted to transmit an identifier code to the base station, or antennas, allowing each carrier to be uniquely identified. This further helps monitor the location of the carriers 1, thereby further improving security. For example, this can be used to record an audit trail so that the passage of each carrier 2 through the system is recorded and stored in a database (not
25 shown). In this case, the record of the carrier movements can be stored in an encrypted fashion together with associated time stamps, to thereby prevent the data being subsequently manipulated. This allows the carrier movements to be uniquely determined at any time in the future, such that should a theft occur, the location of the respective carrier during the time of theft may be determined.

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In addition to this, the use of unique identifiers allows the carriers 2 to be directed

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automatically through the tube system 1 to selected destinations as required.

To allow the system to be integrated into existing air tubes systems, the carrier is preferably dimensioned, and adapted to be used in existing tubes. Accordingly, the carrier
5 typically has a length of 360-400mm and is adapted to travel in a 152mm diameter tube or 160mm Lamson airtube system.

Persons skilled in the art will appreciate that numerous variations and modifications will become apparent. All such variations and modifications which become apparent to
10 persons skilled in the art, should be considered to fall within the spirit and scope that the invention broadly appearing before described.

Dated this Fourth Day of June, 2002

15 **LAMSON CONCEPTS PTY LIMITED**

By their Patent Attorneys

DAVIES COLLISON CAVE

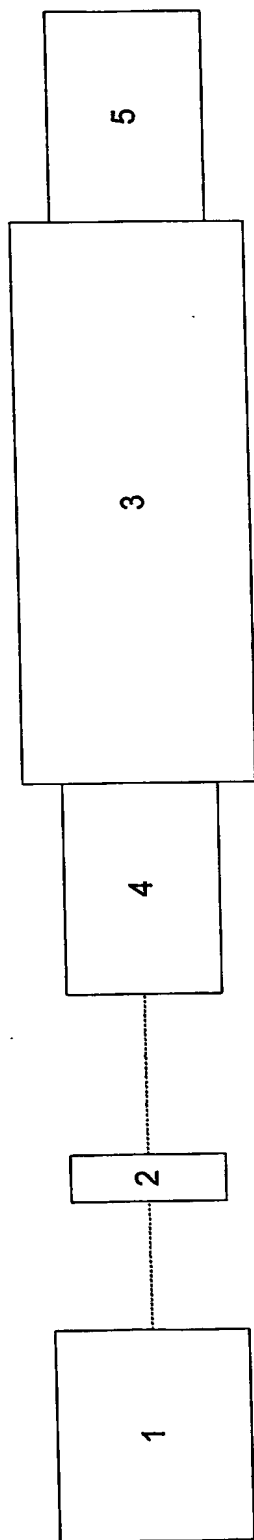


Fig. 1

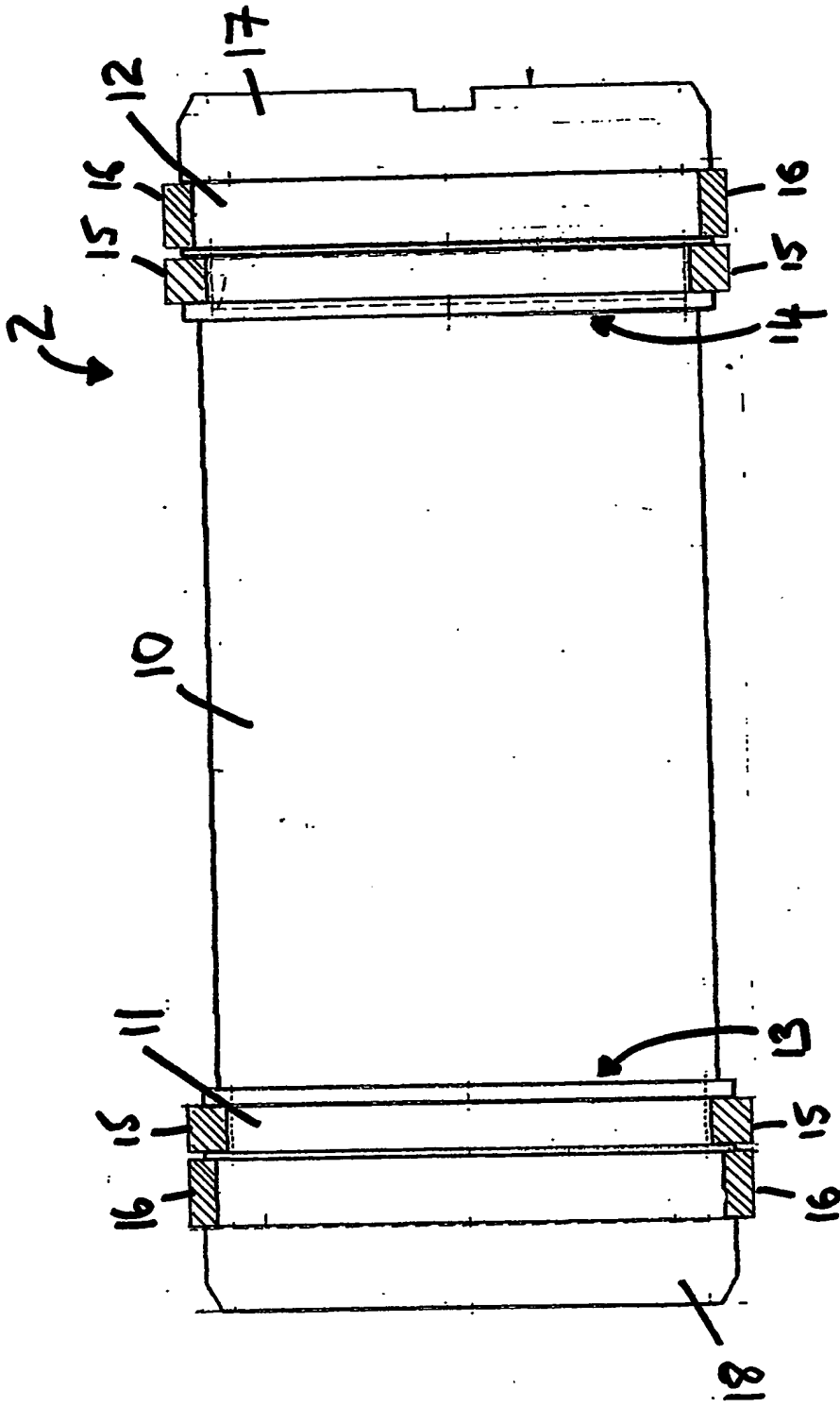


Fig. 2A.

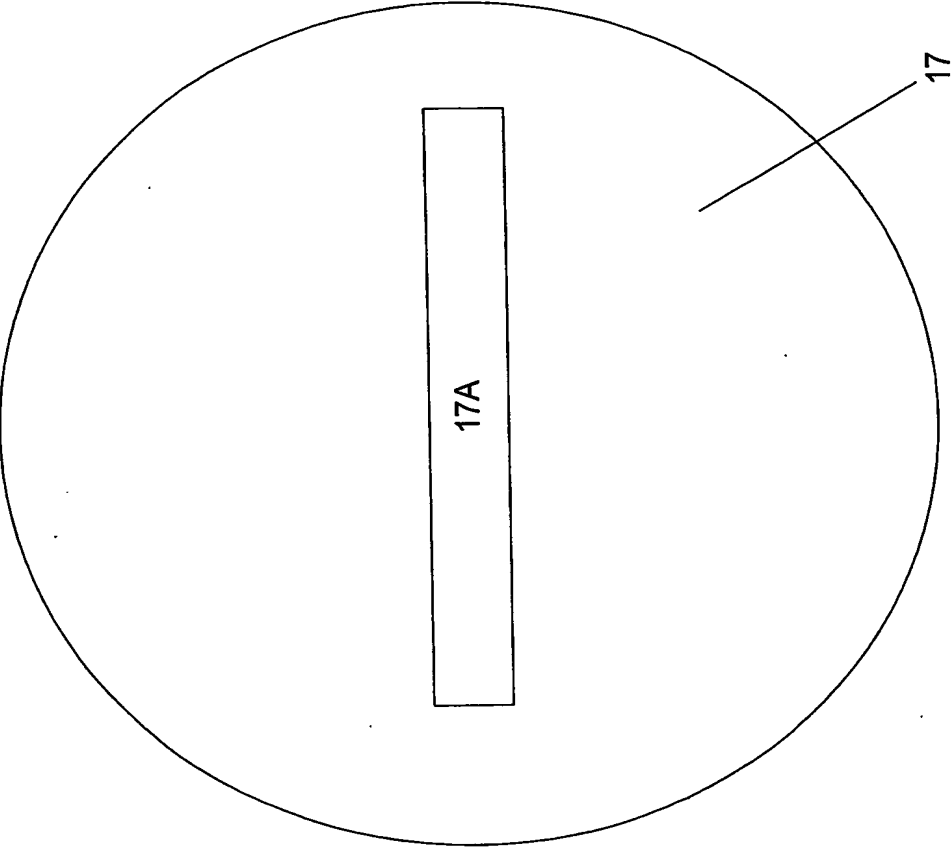


Fig. 2B

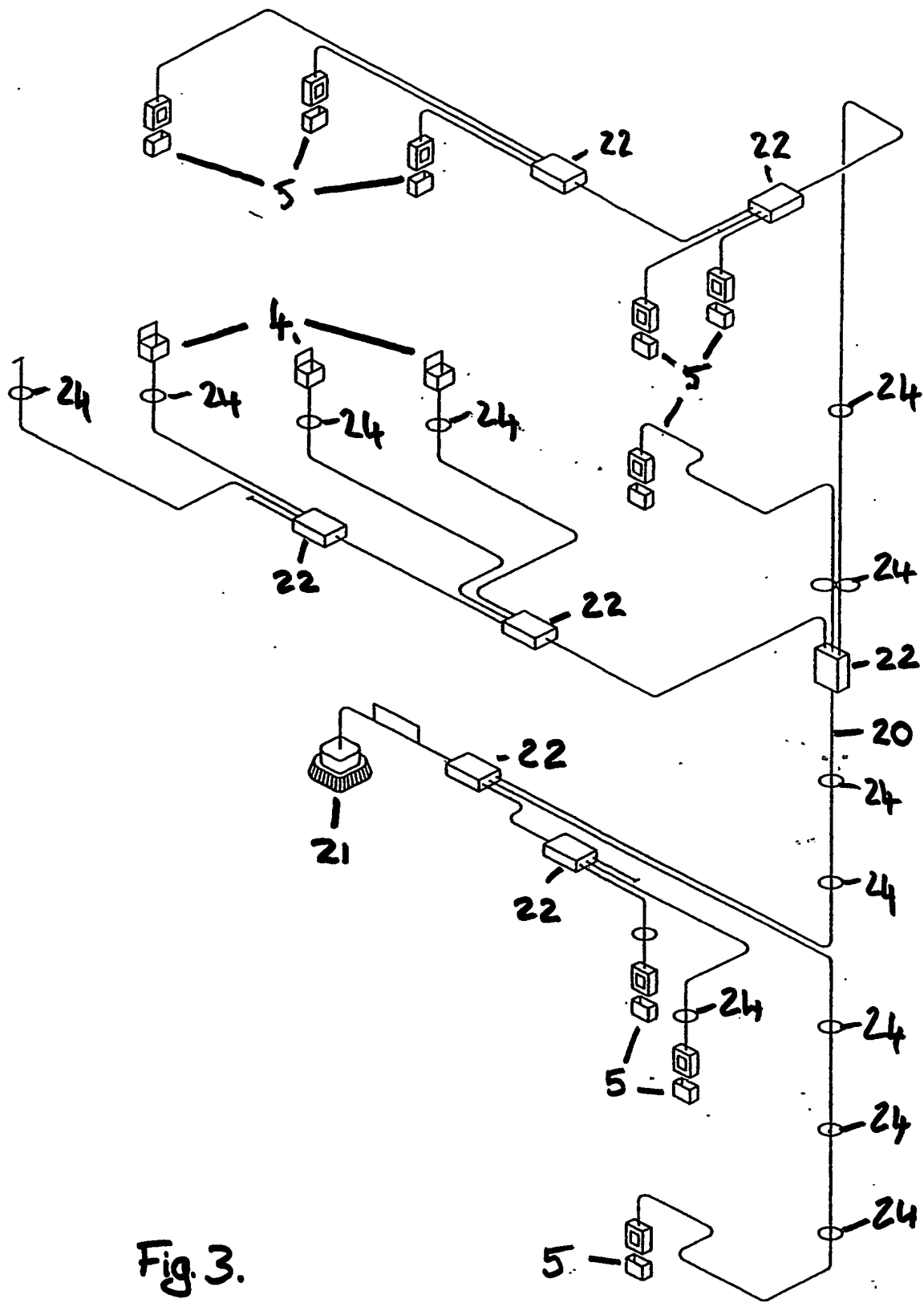


Fig. 3.

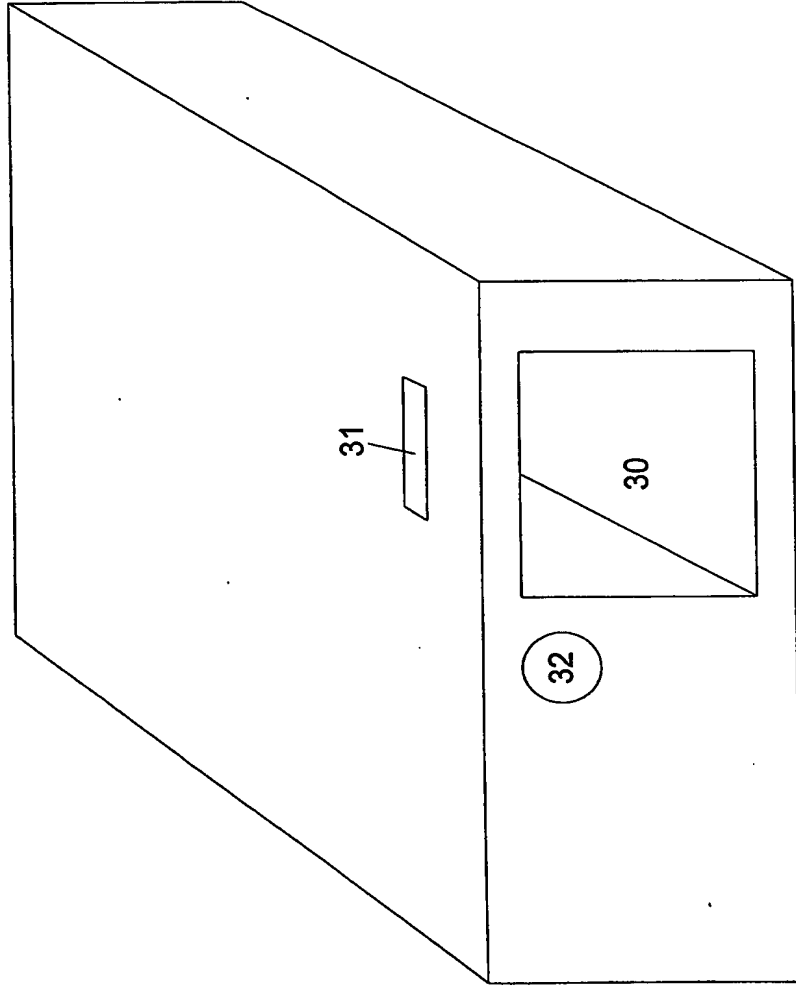


Fig. 4

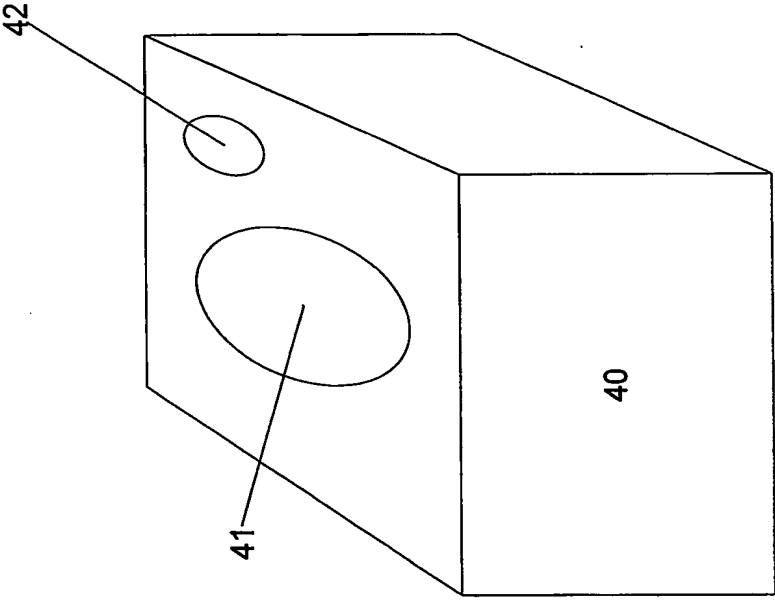


Fig. 5